

Replacement Sheet

1/39

+

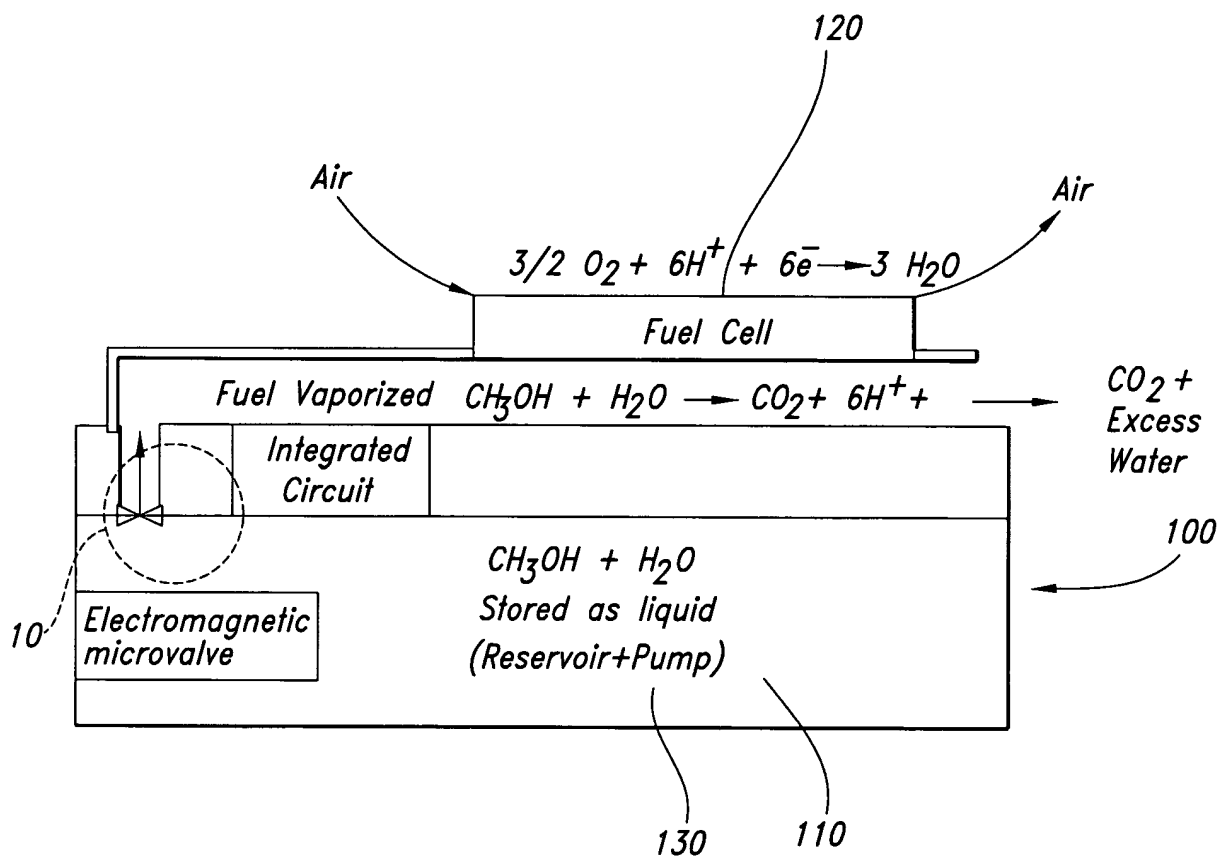


FIG. 1

+

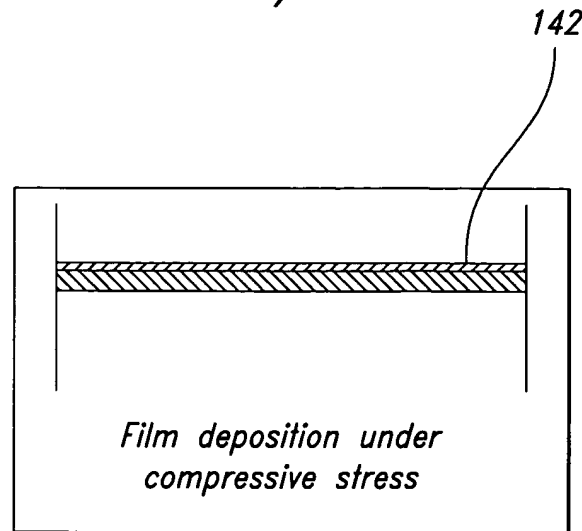


FIG. 2A

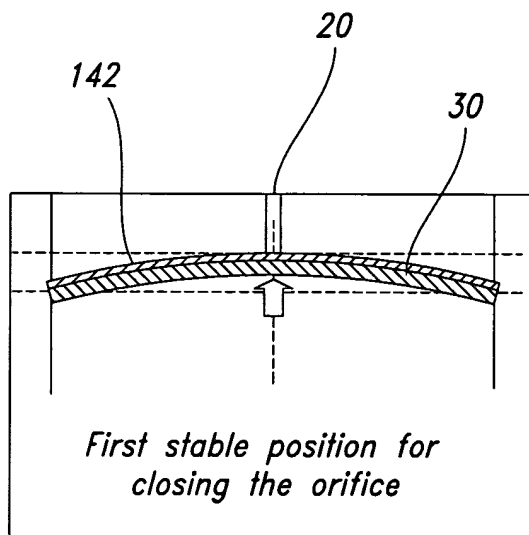


FIG. 2B

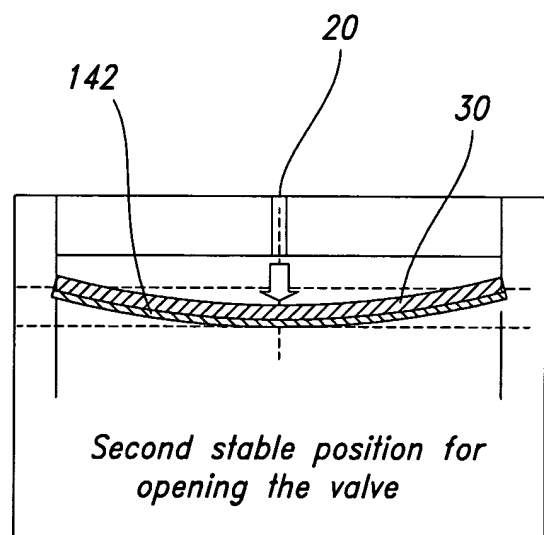


FIG. 2C



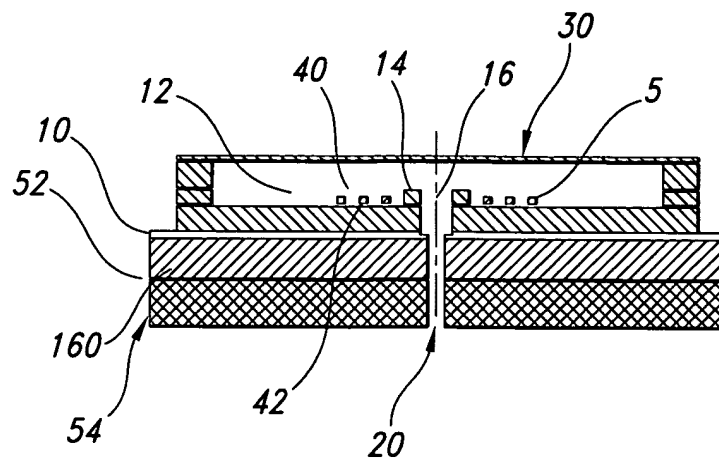


FIG. 3A

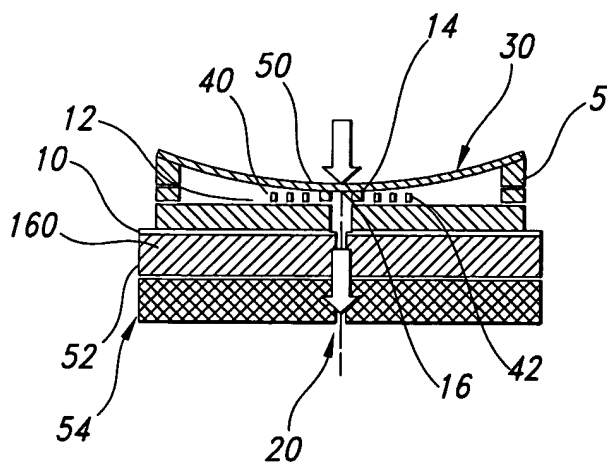


FIG. 3B

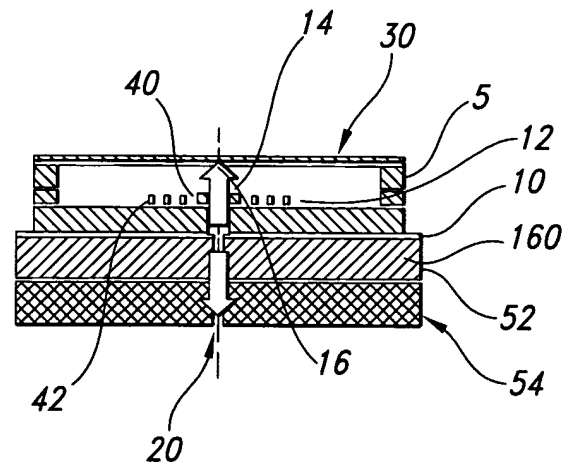


FIG. 3C



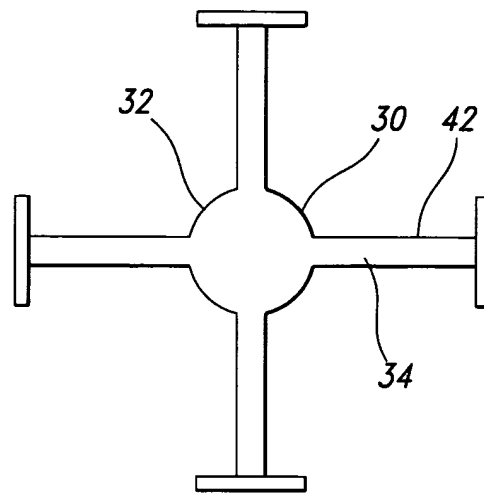


FIG. 4A

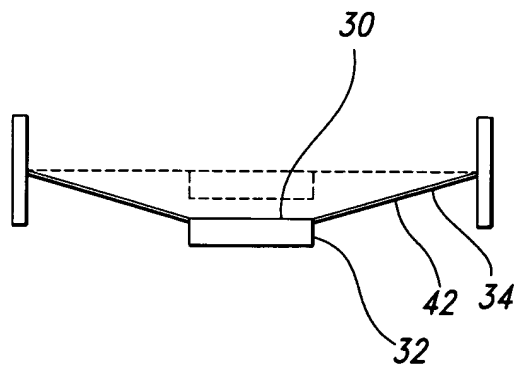


FIG. 4B



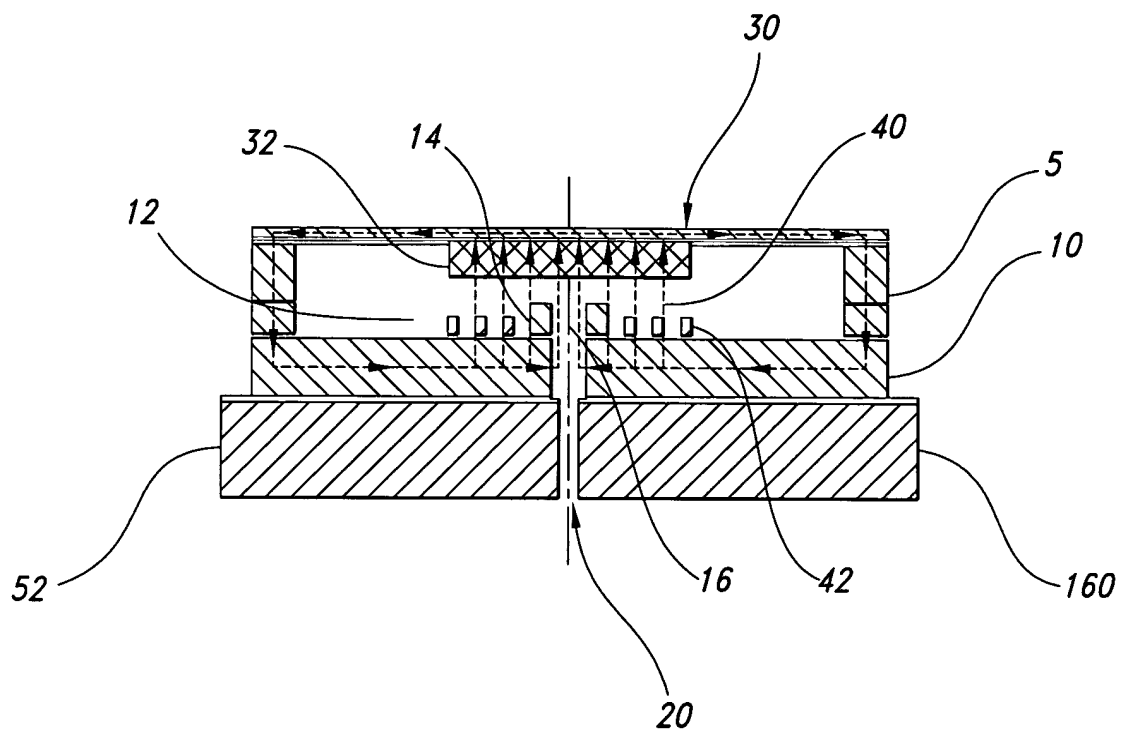


FIG. 5

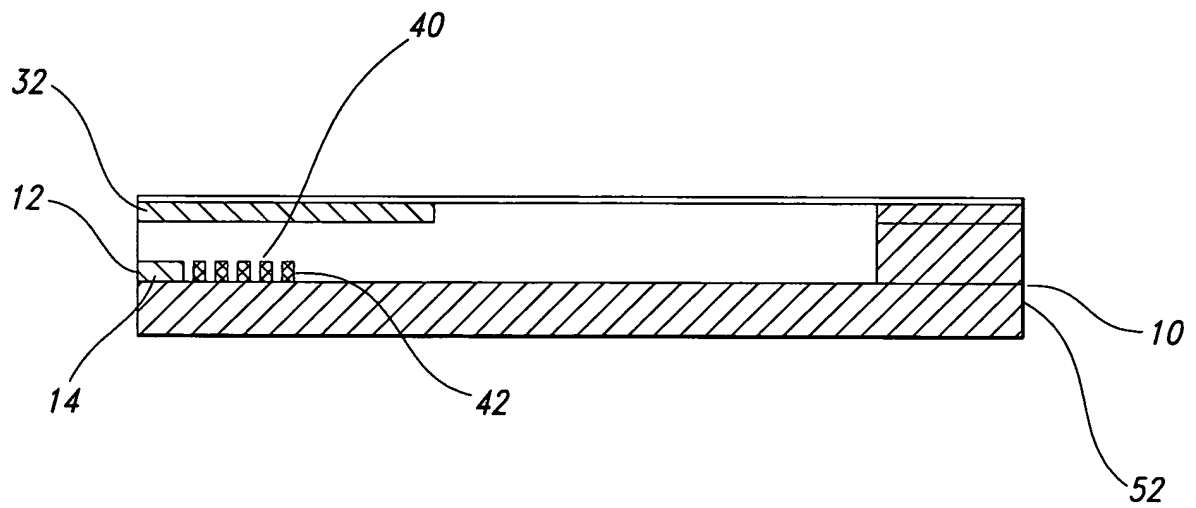


FIG. 6

Replacement Sheet

7/39

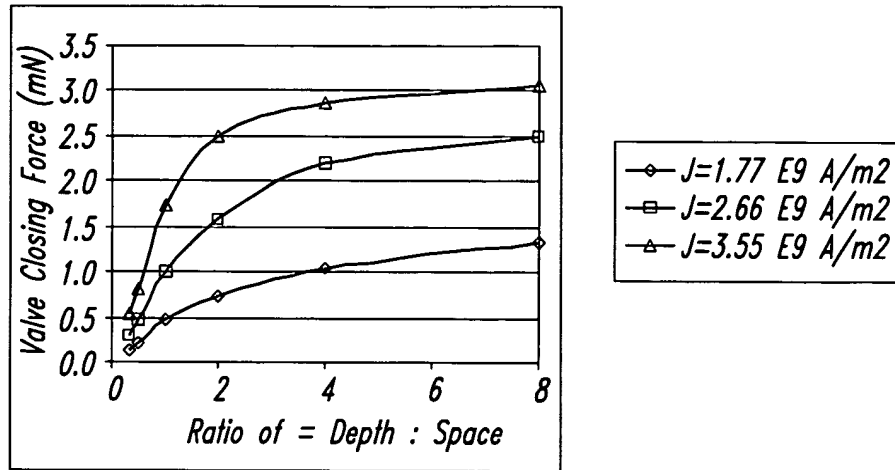


FIG. 7

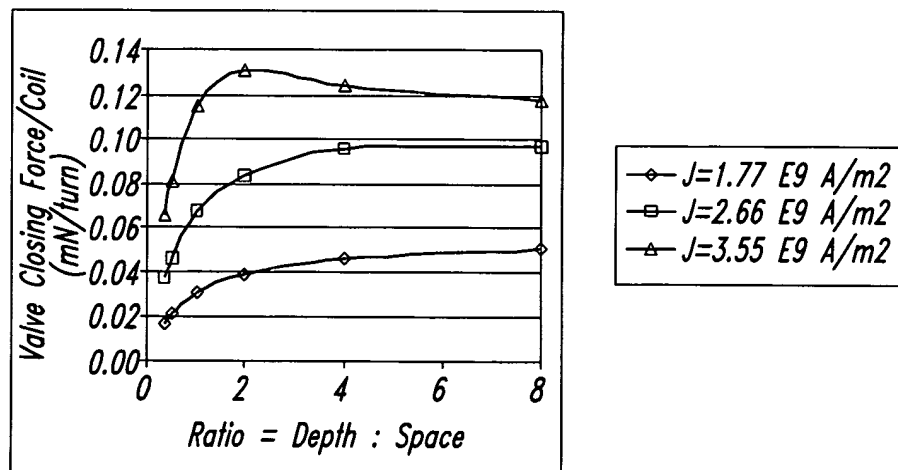


FIG. 8

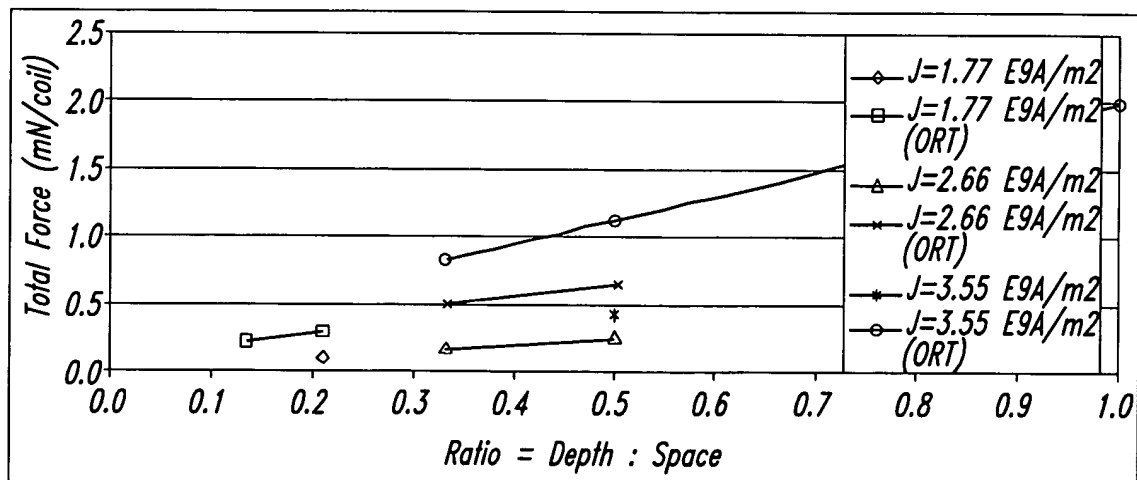


FIG. 9

Replacement Sheet

8/39

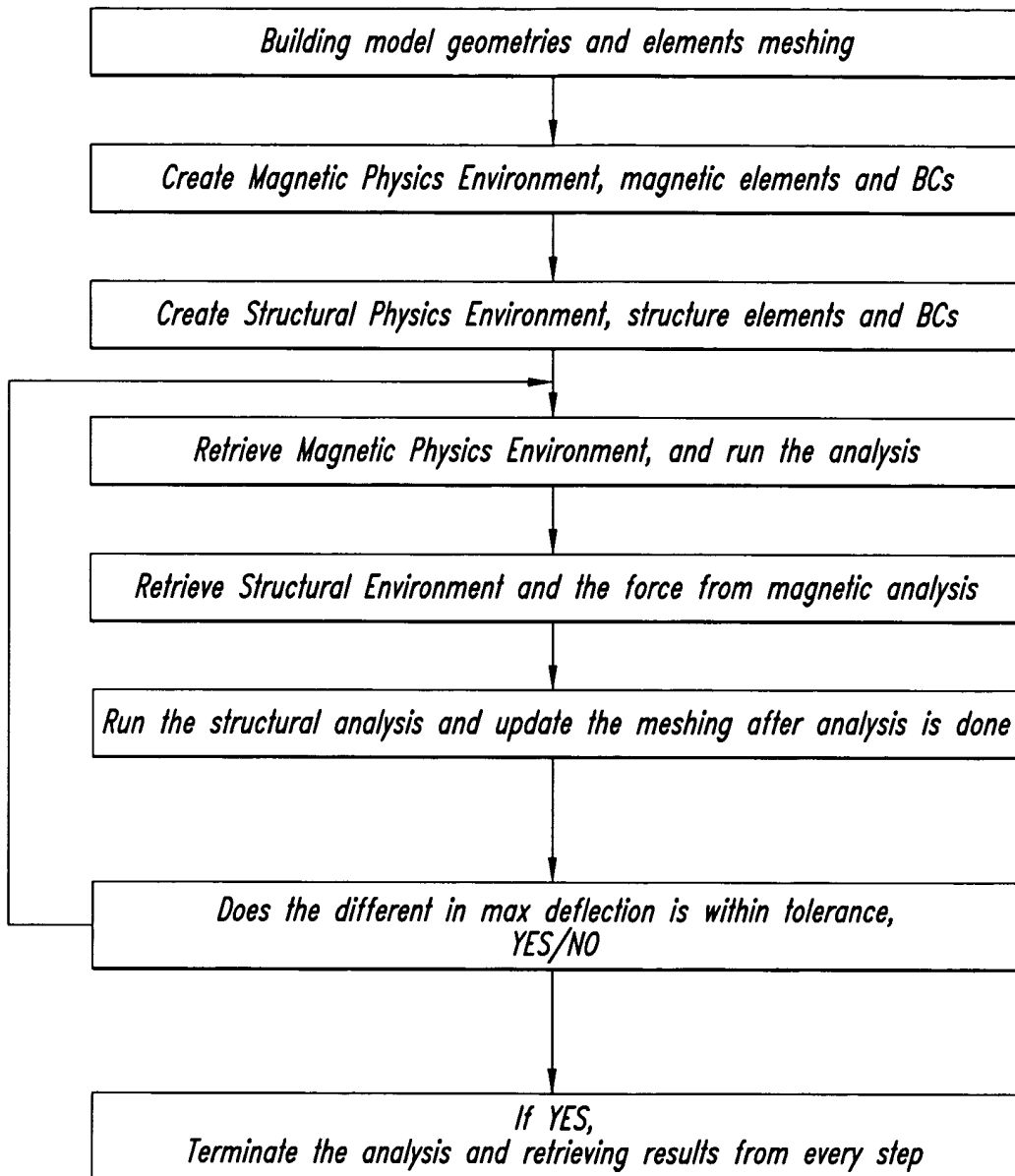


FIG. 10

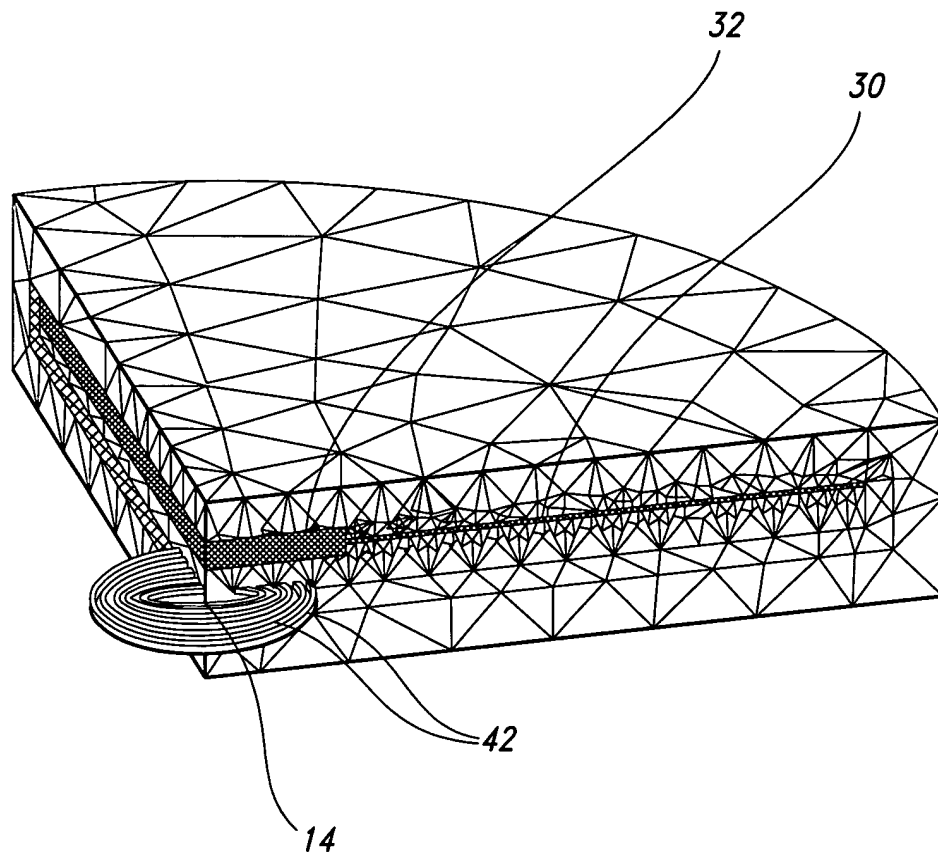


FIG. 11



Replacement Sheet

10/39

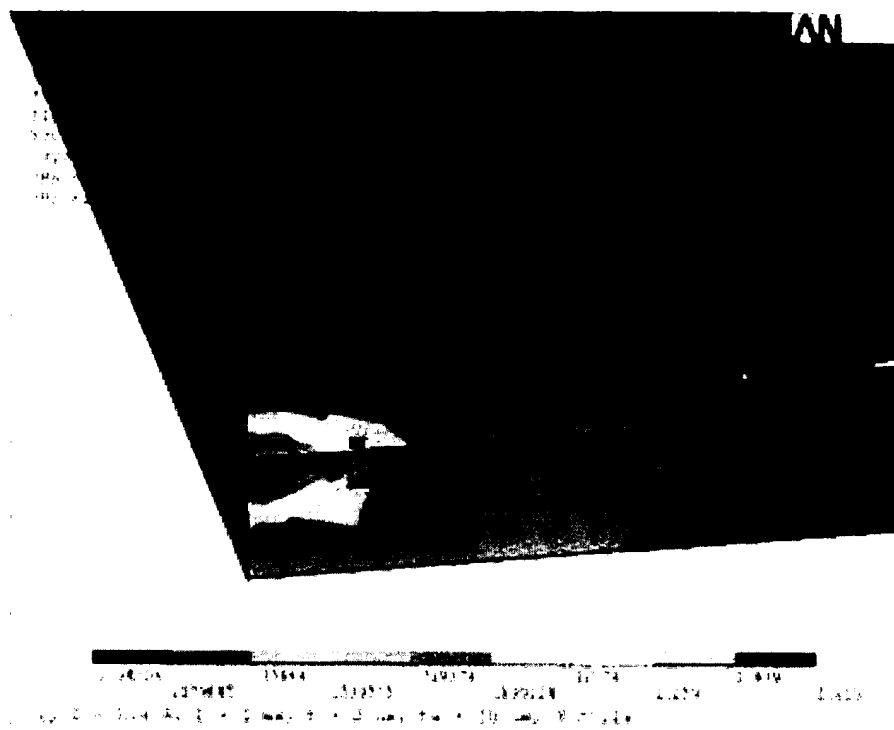


FIG. 12A

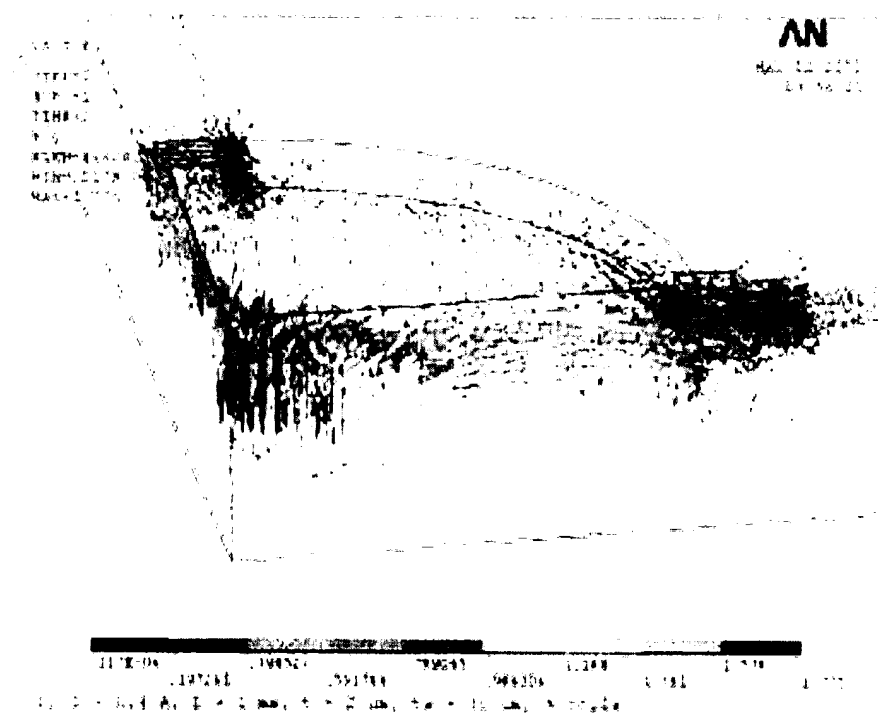


FIG. 12B



11/39

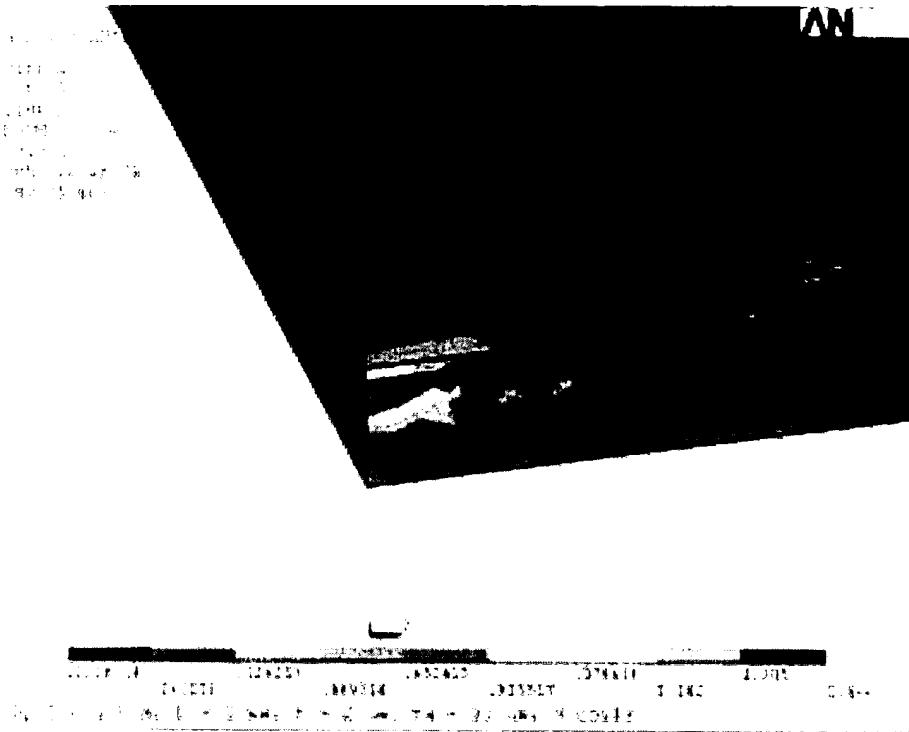


FIG. 13A

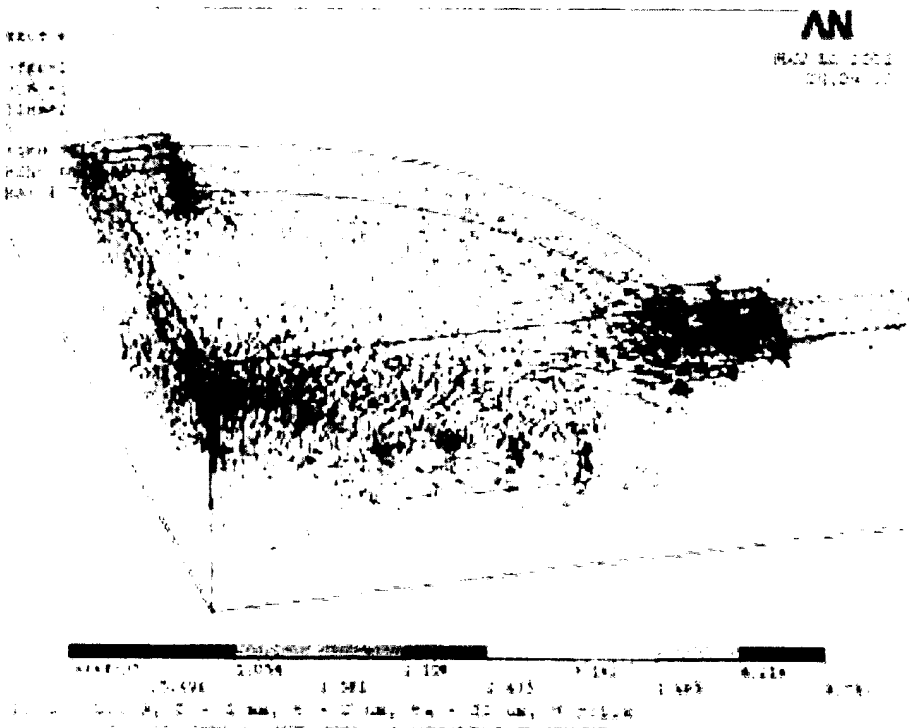


FIG. 13B

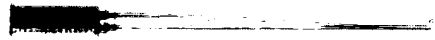
+

Replacement Sheet

12/39

AN

FIG. 14A



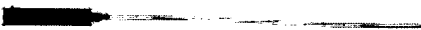
AN

FIG. 14B



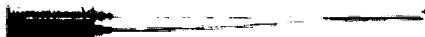
AN

FIG. 14C



AN

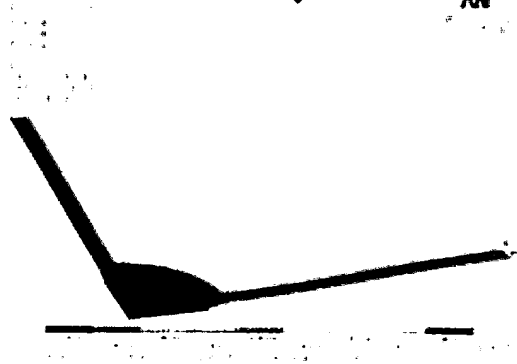
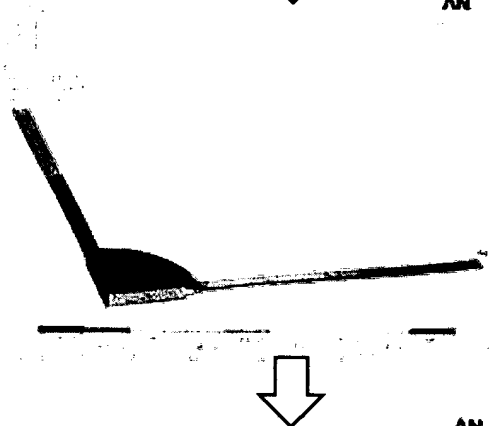
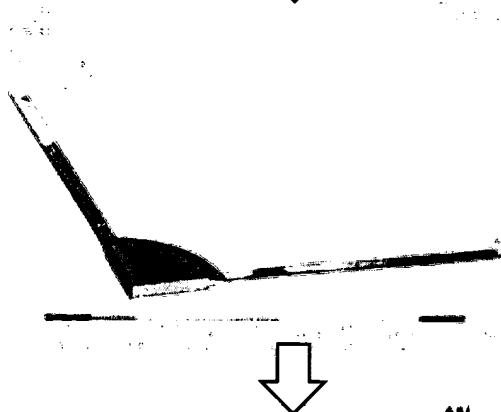
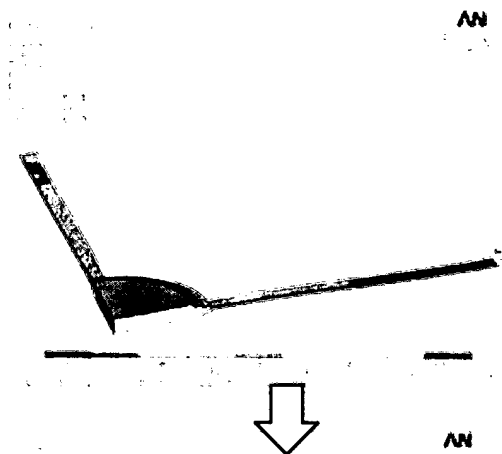
FIG. 14D



Replacement Sheet

13/39

+



+

Replacement Sheet

14/39

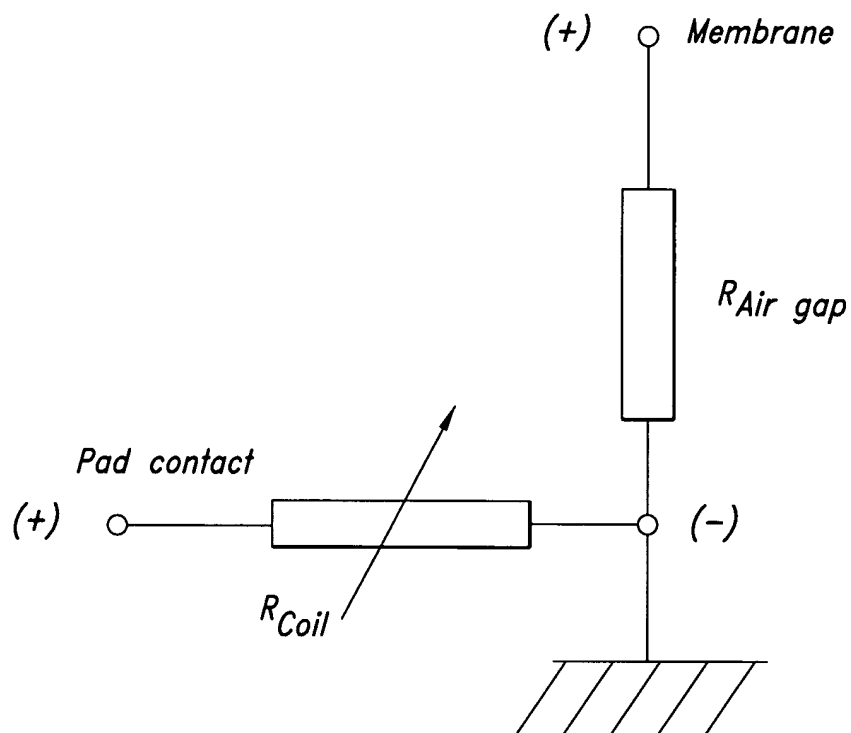


FIG. 16

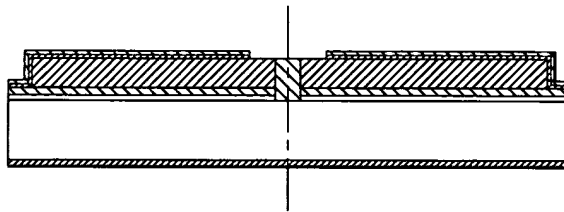


FIG. 17A

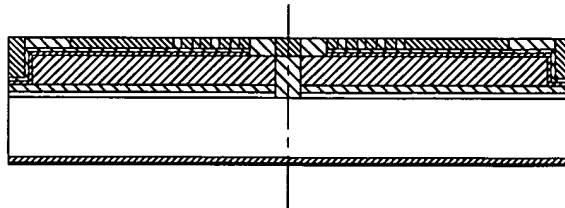


FIG. 17B



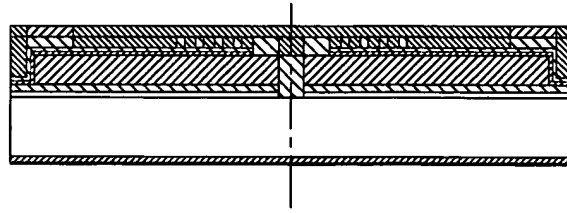


FIG. 17C

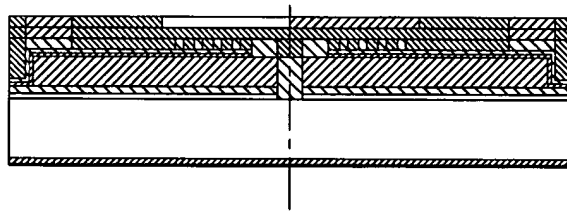


FIG. 17D

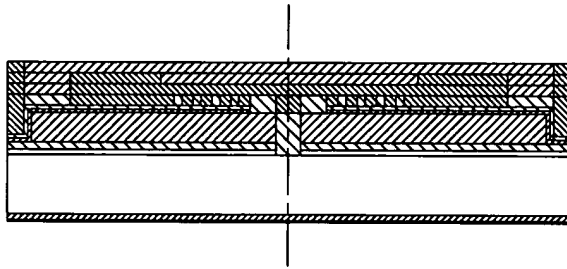


FIG. 17E

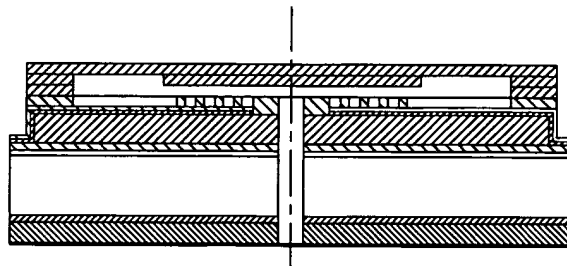


FIG. 17F



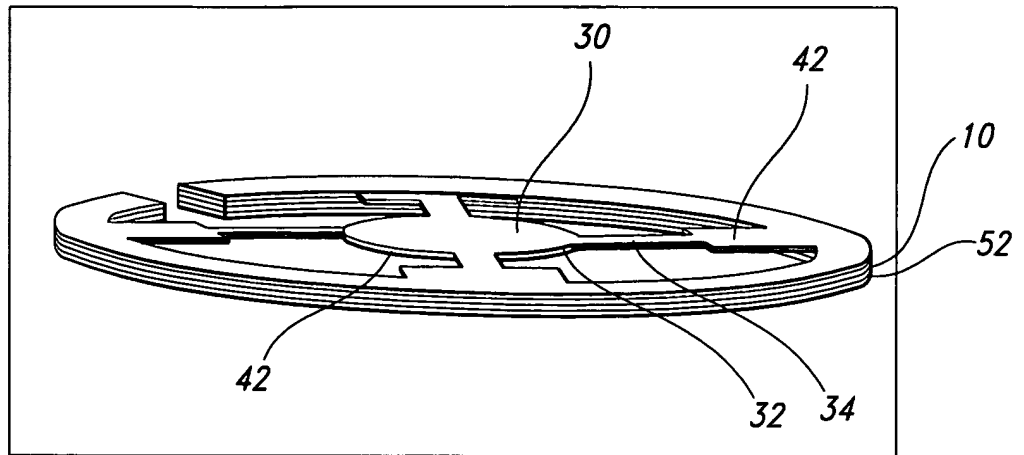


FIG. 18

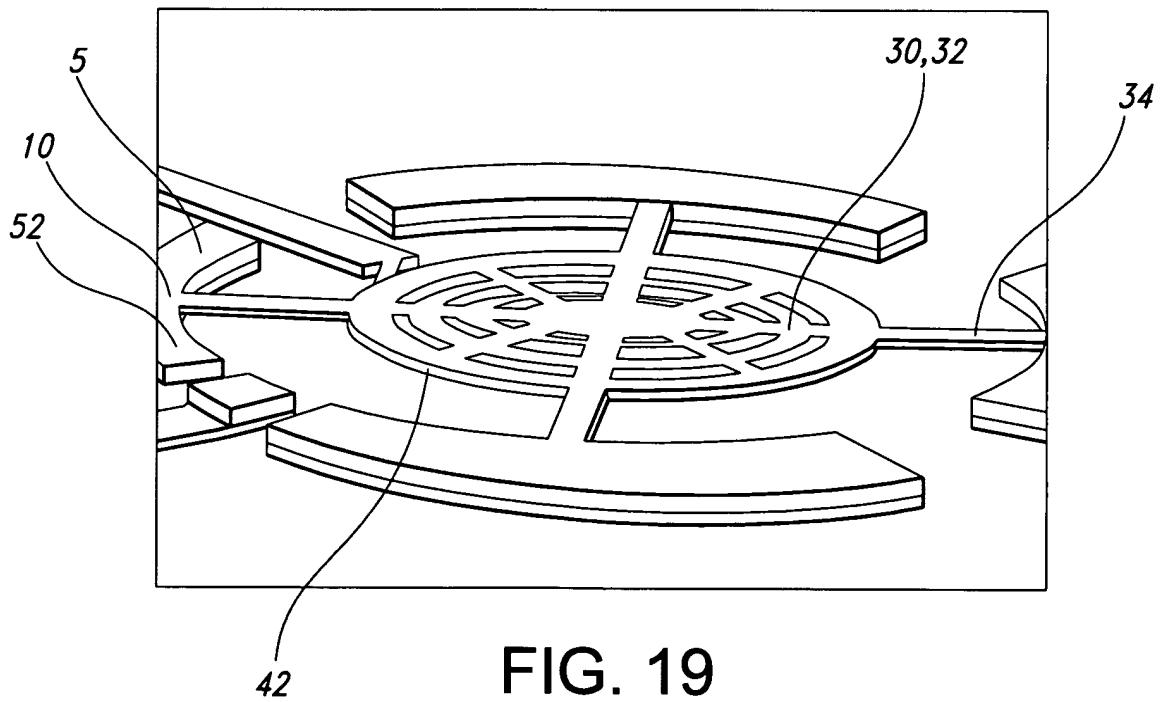
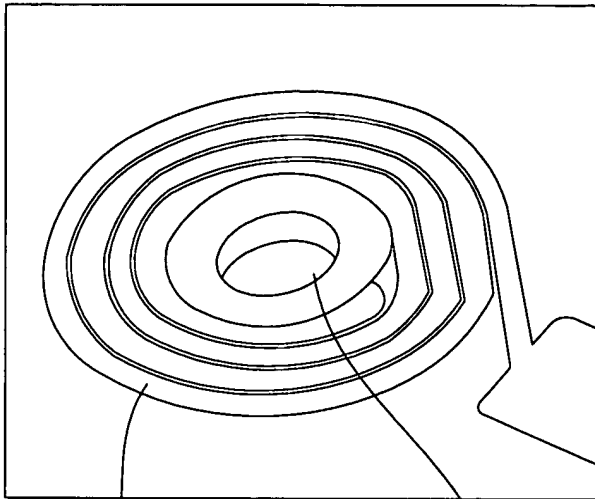


FIG. 19





42

16

FIG. 20

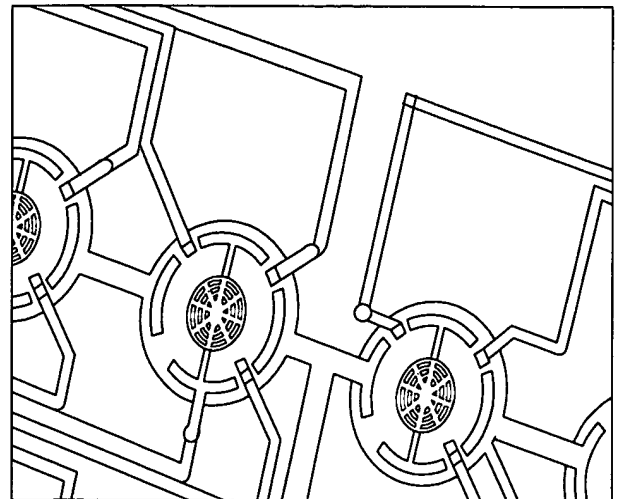


FIG. 21

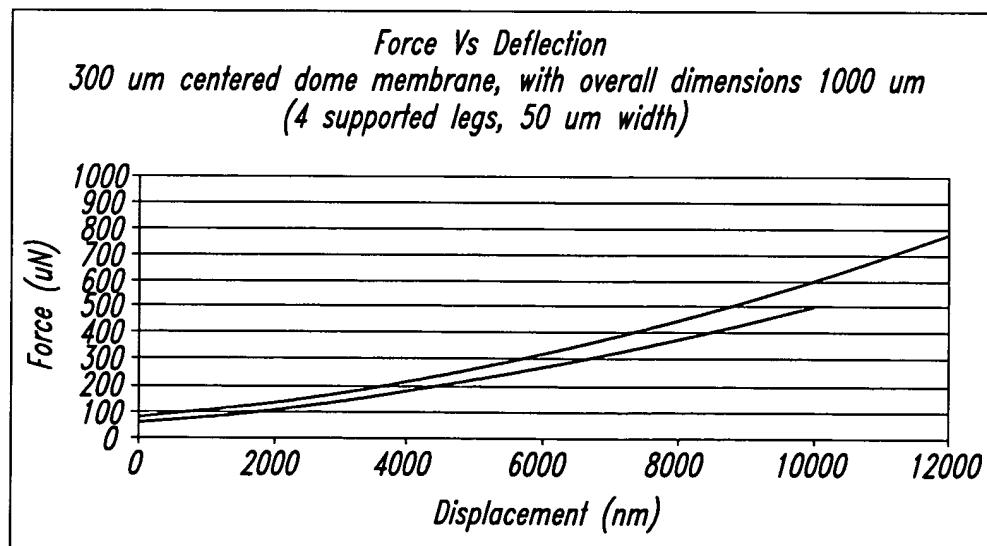


FIG. 22

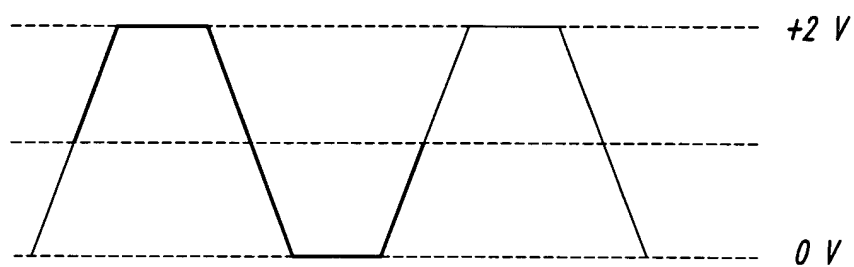


FIG. 23

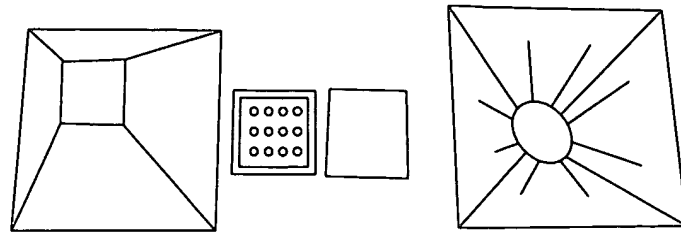


FIG. 24A

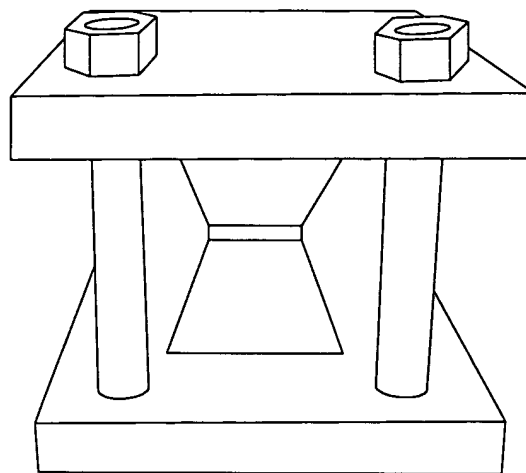


FIG. 24B

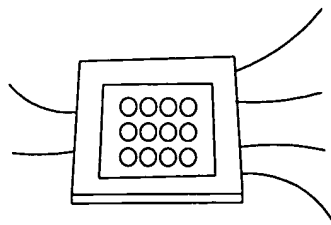


FIG. 24C



Replacement Sheet

21/39

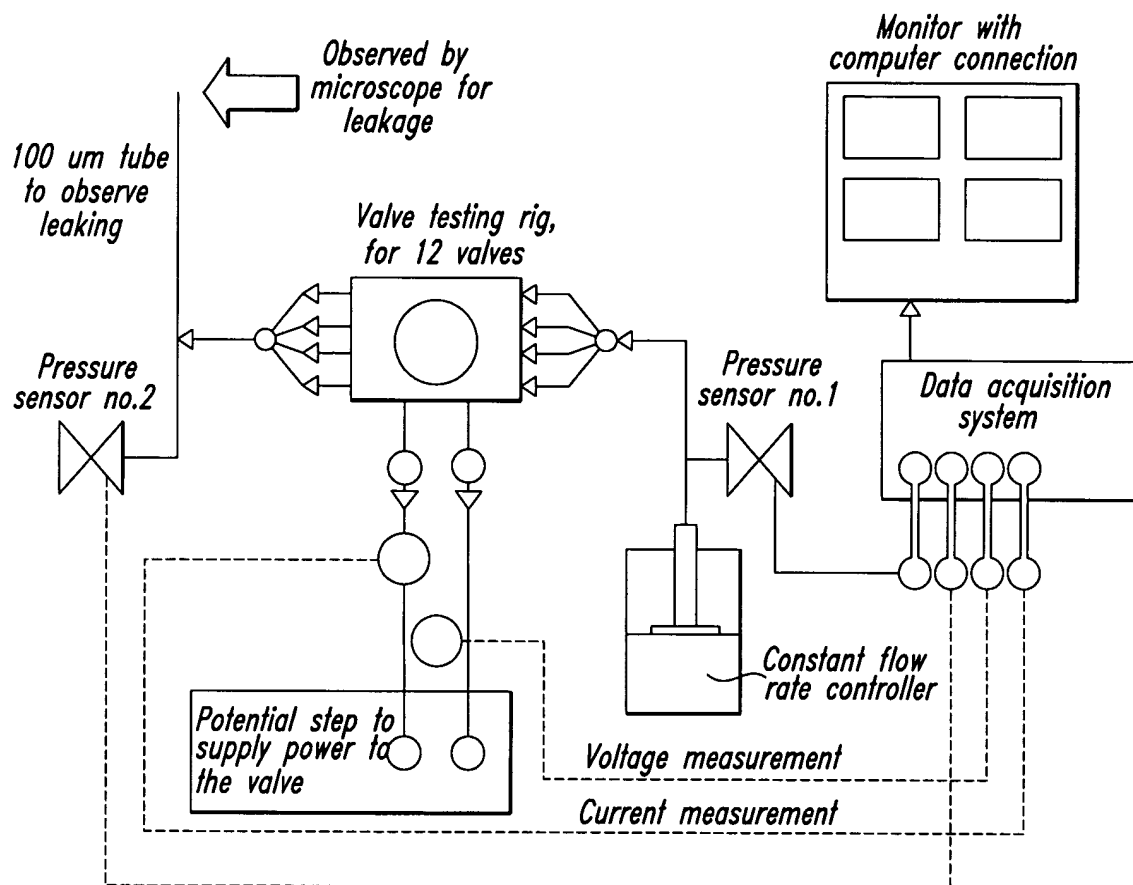


FIG. 25

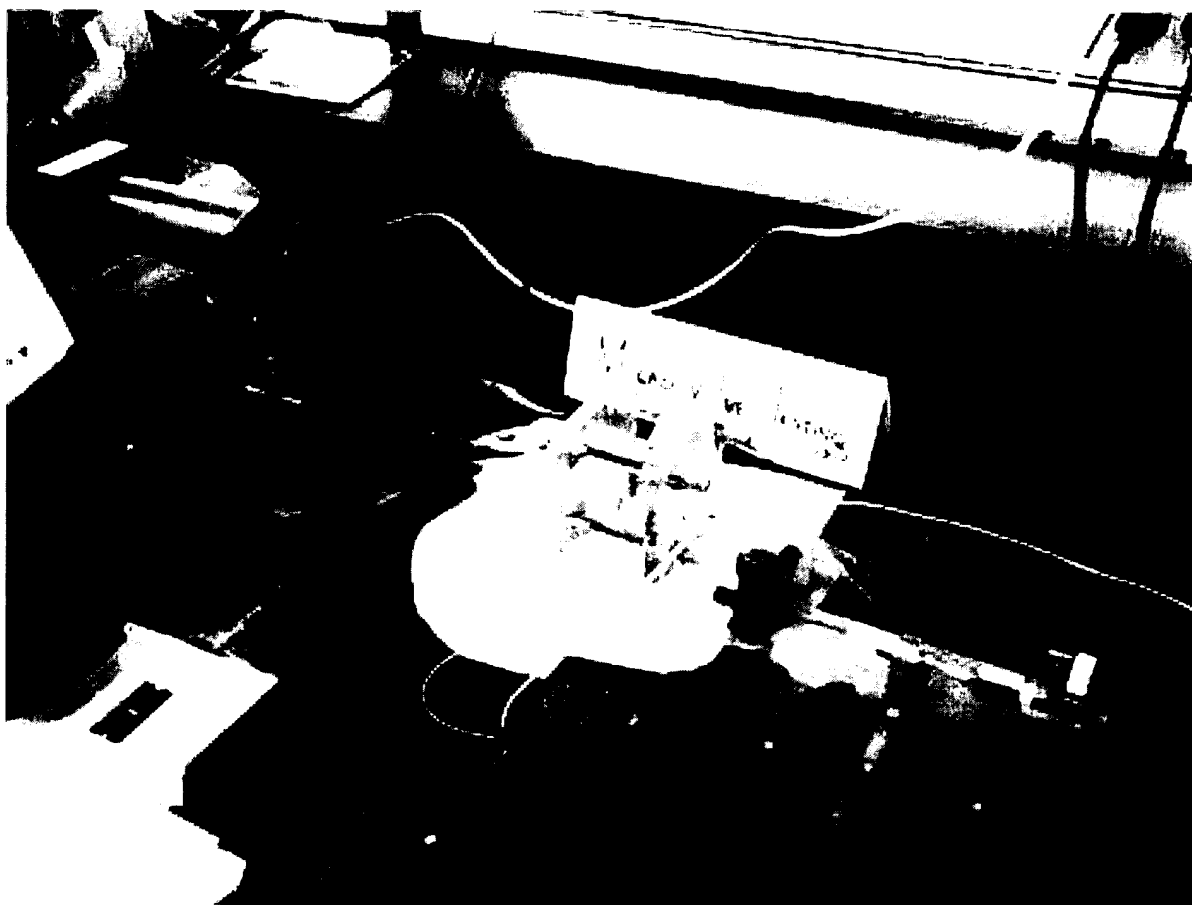


FIG. 26

Replacement Sheet

23/39

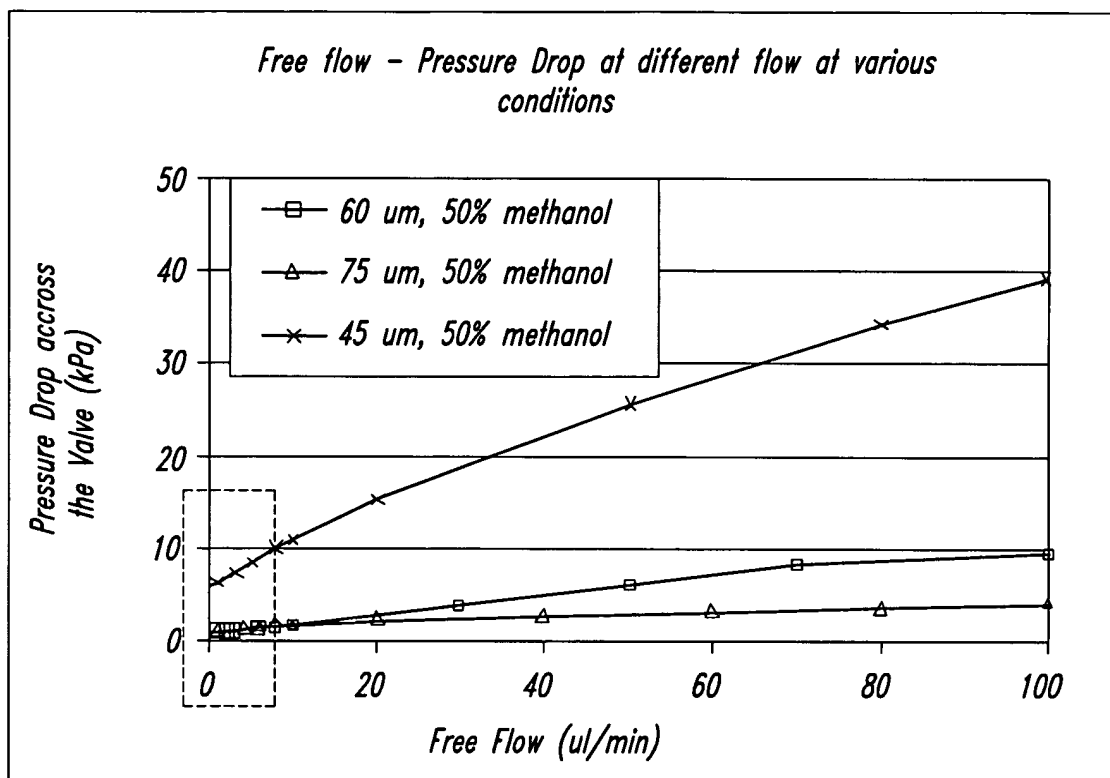


FIG. 27

Replacement Sheet

24/39

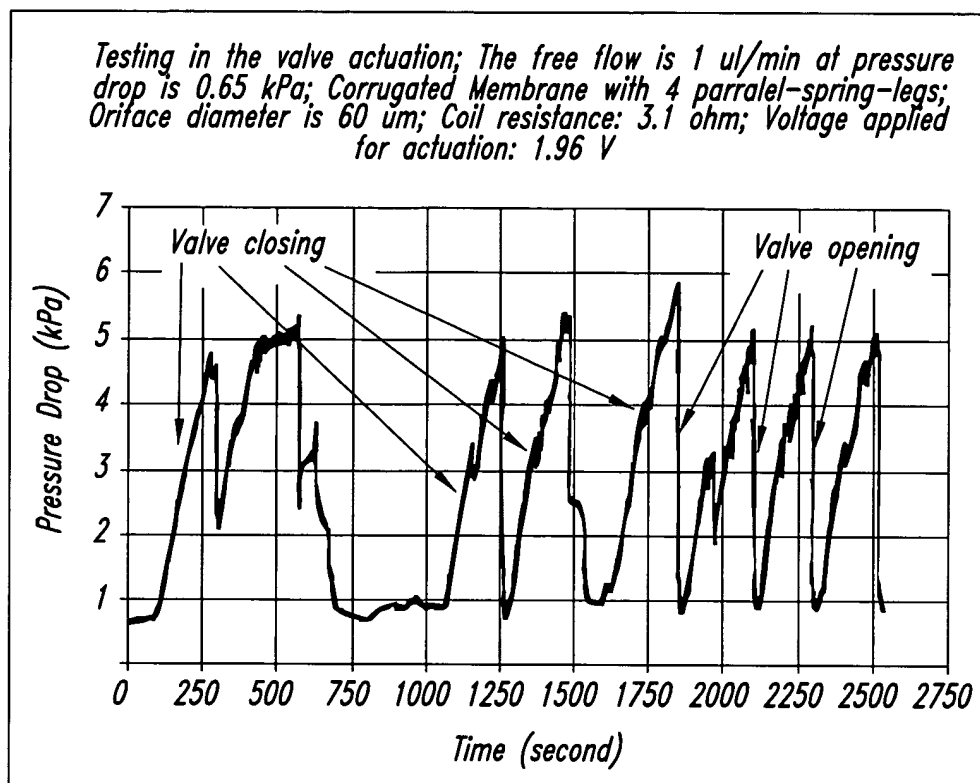


FIG. 28

Replacement Sheet

25/39

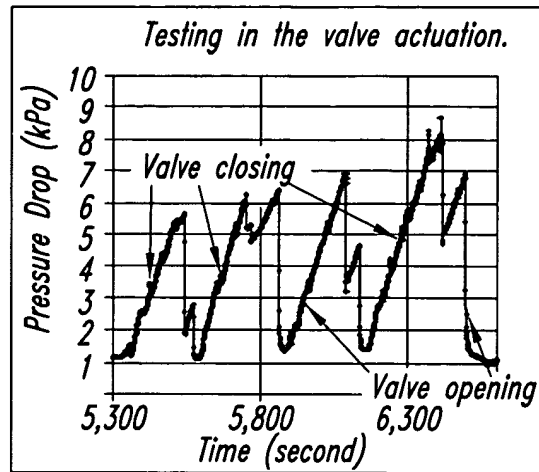


FIG. 29

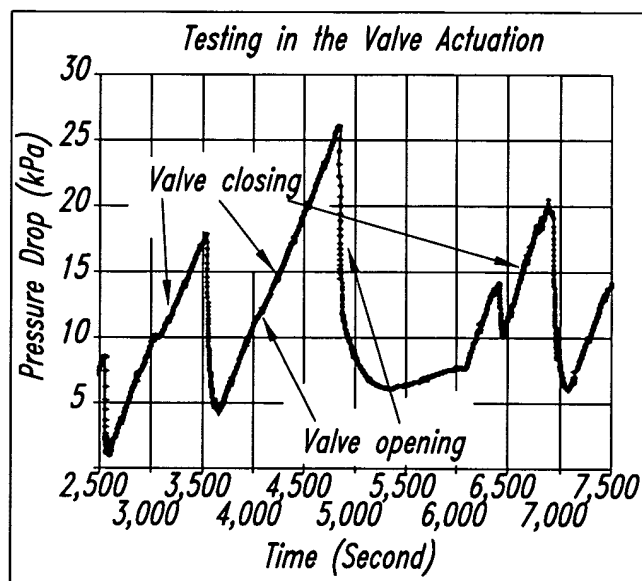


FIG. 30

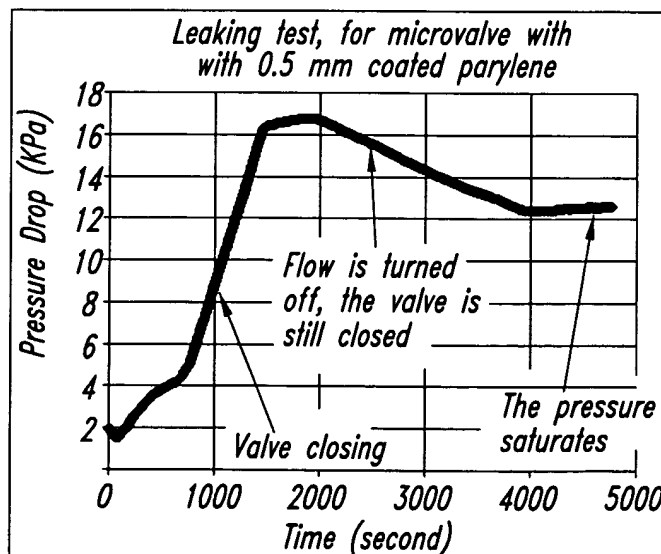


FIG. 31

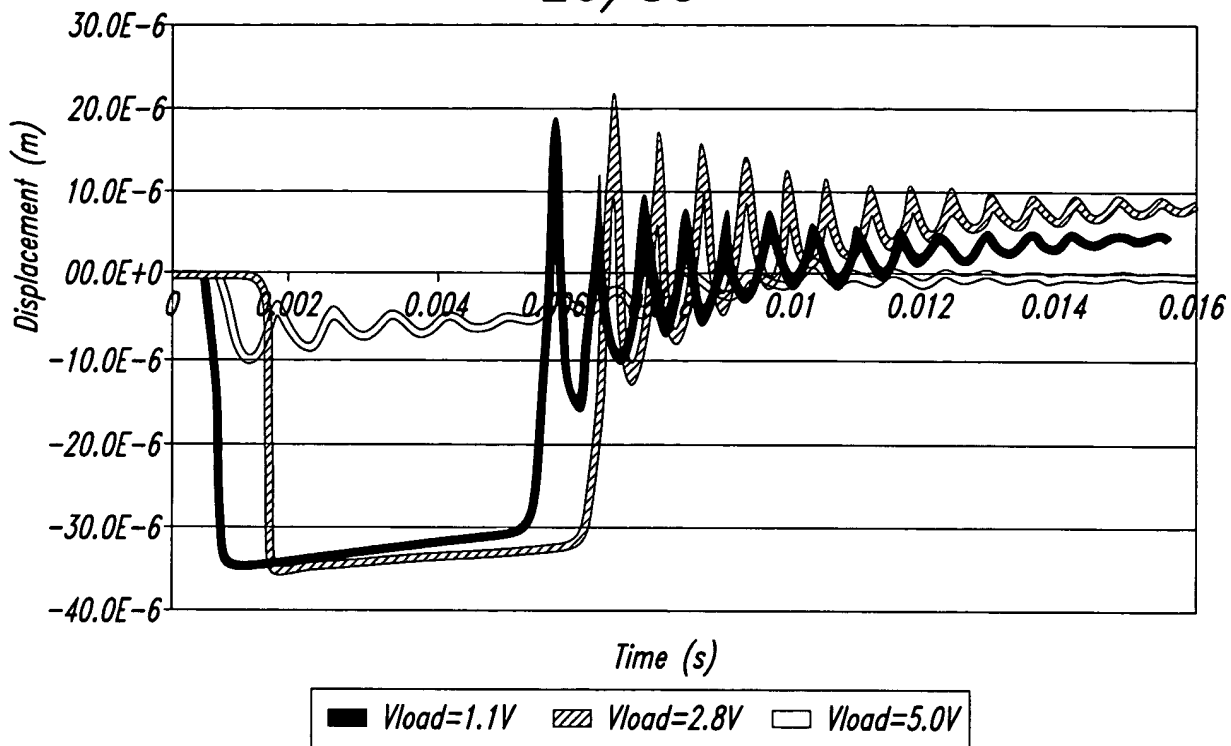


FIG. 32

Sample of responses for varying V_{load} values with $f_b = 1kHz$

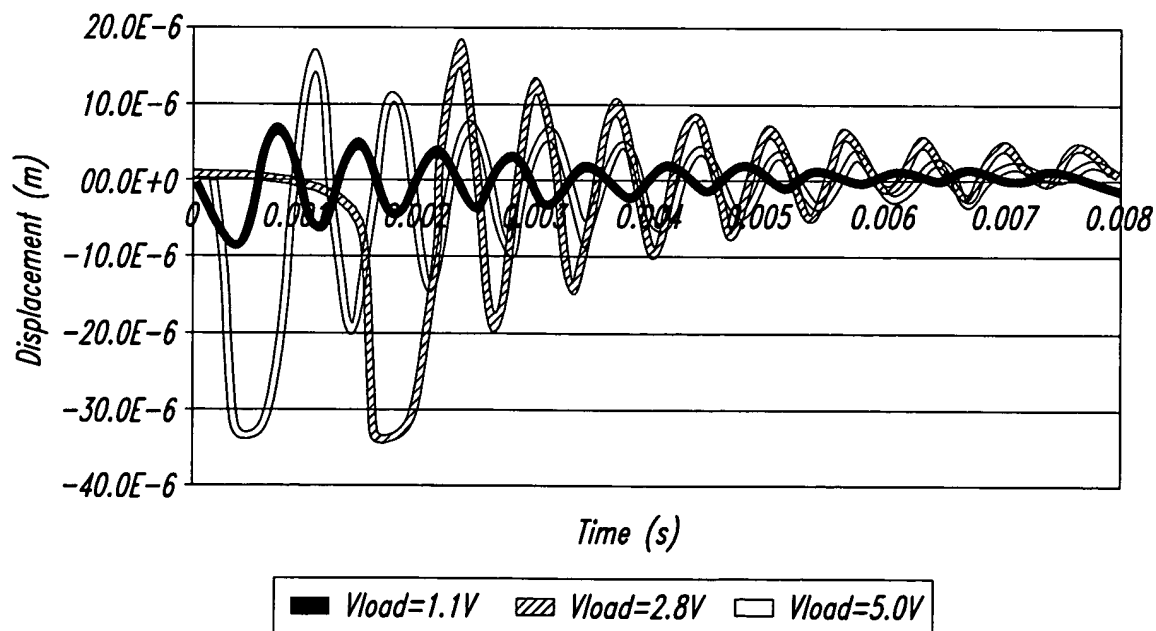


FIG. 33

Replacement Sheet

27/39

Velocity and Displacement of Microvalve
fb = 1kHz; Vload = 3.28V

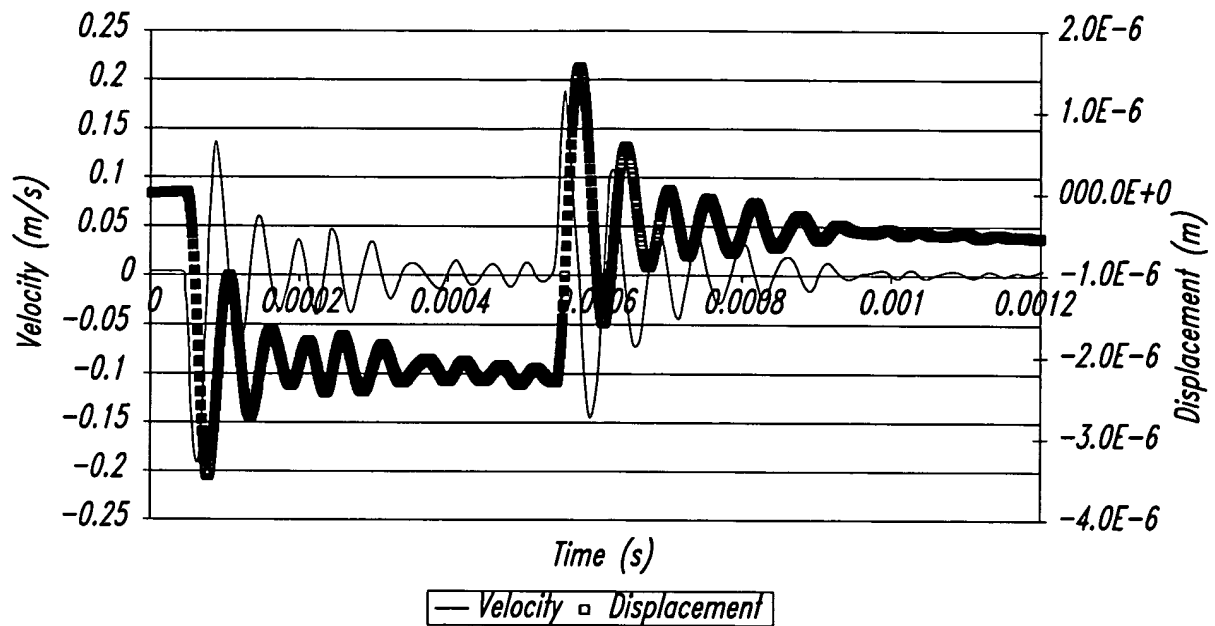


FIG. 34

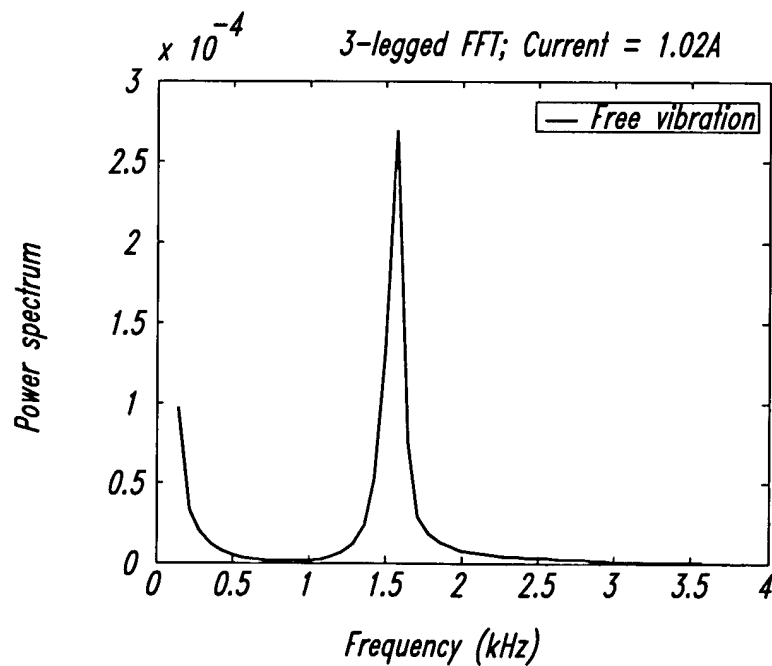


FIG. 35

Replacement Sheet

28/39

Experimental Response

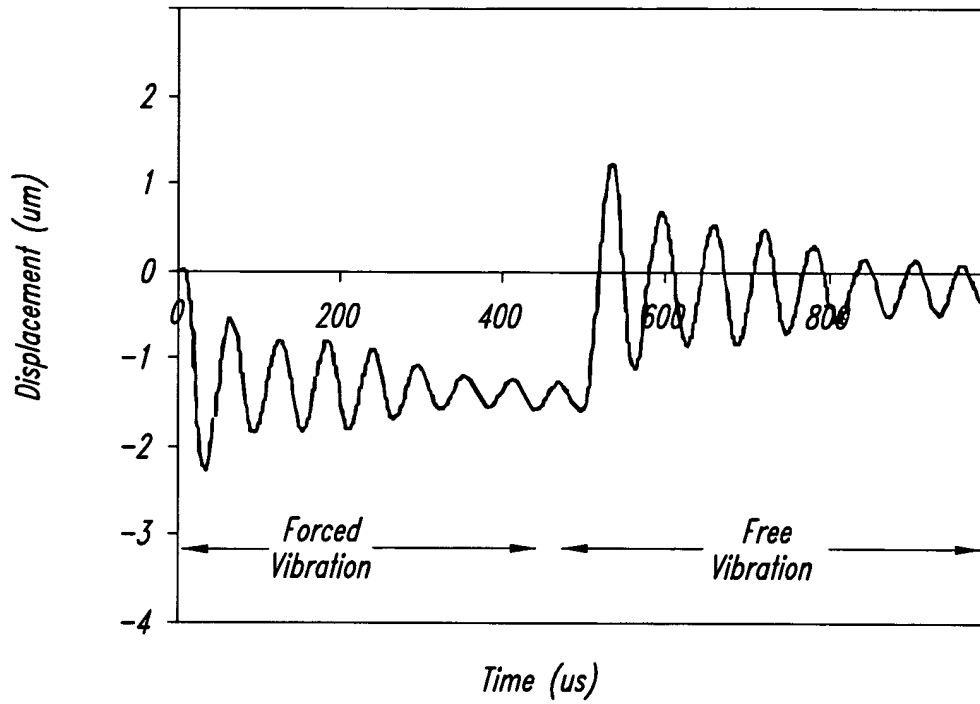


FIG. 36

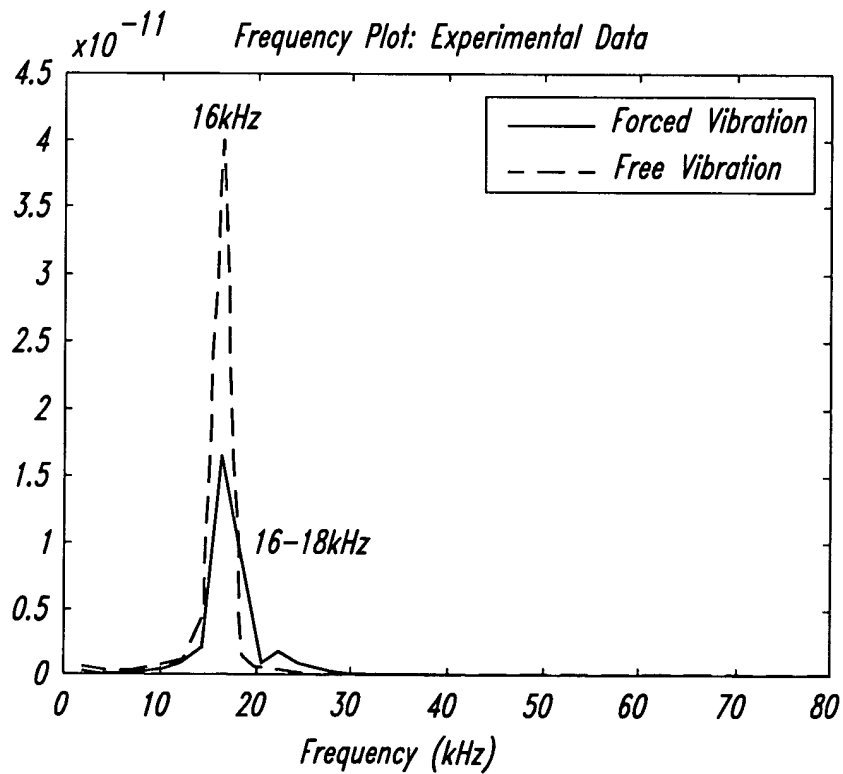


FIG. 37

Replacement Sheet

29/39

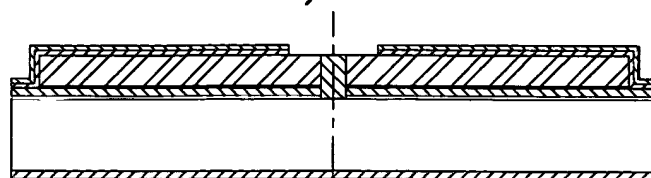


FIG. 38A

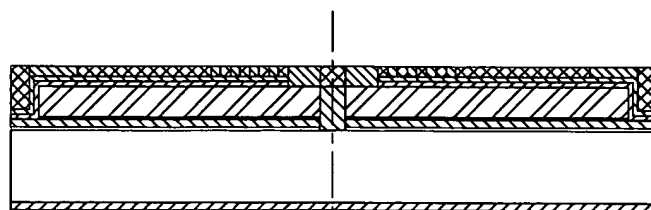


FIG. 38B

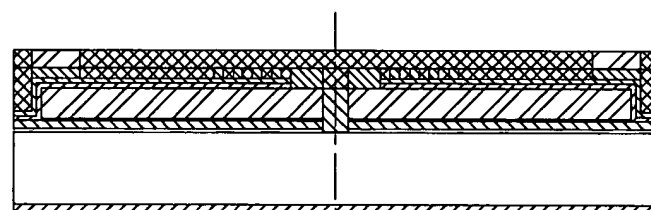


FIG. 38C

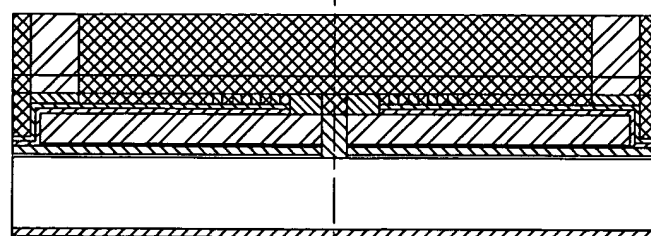
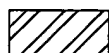


FIG. 38D

Legend:



NiFe



SiO₂



Cu



PR, AZ 4620



Permanent Magnet

Replacement Sheet

30/39

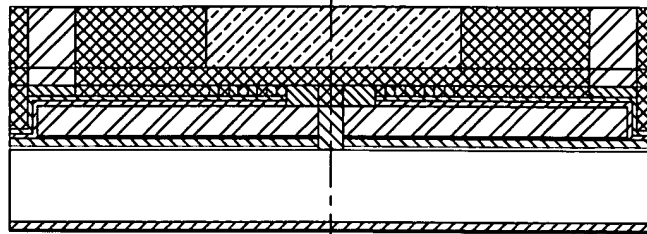


FIG. 38E

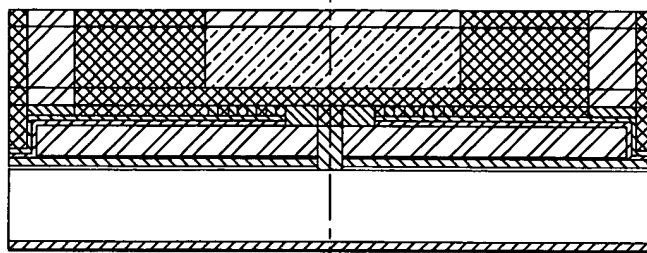


FIG. 38F

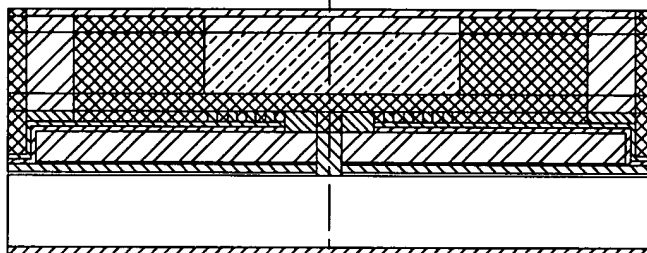


FIG. 38G

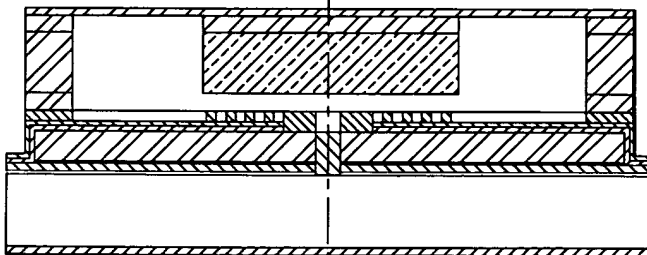


FIG. 38H

Legend:



NiFe



SiO₂



Cu



PR, AZ 4620



Permanent Magnet

Replacement Sheet

31/39

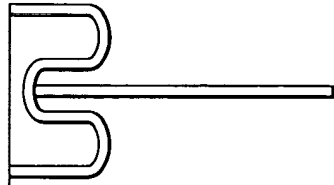


FIG. 39A

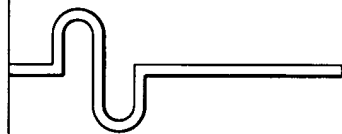


FIG. 39B

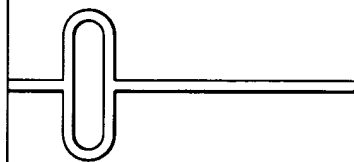


FIG. 39C

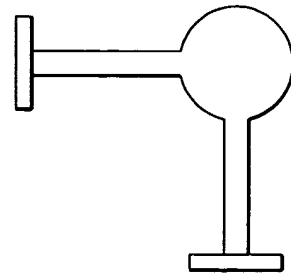


FIG. 40A

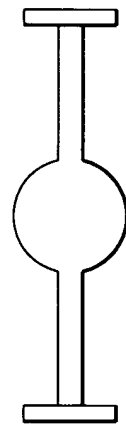


FIG. 40B

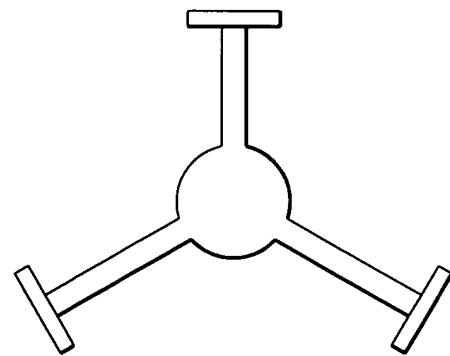


FIG. 40C



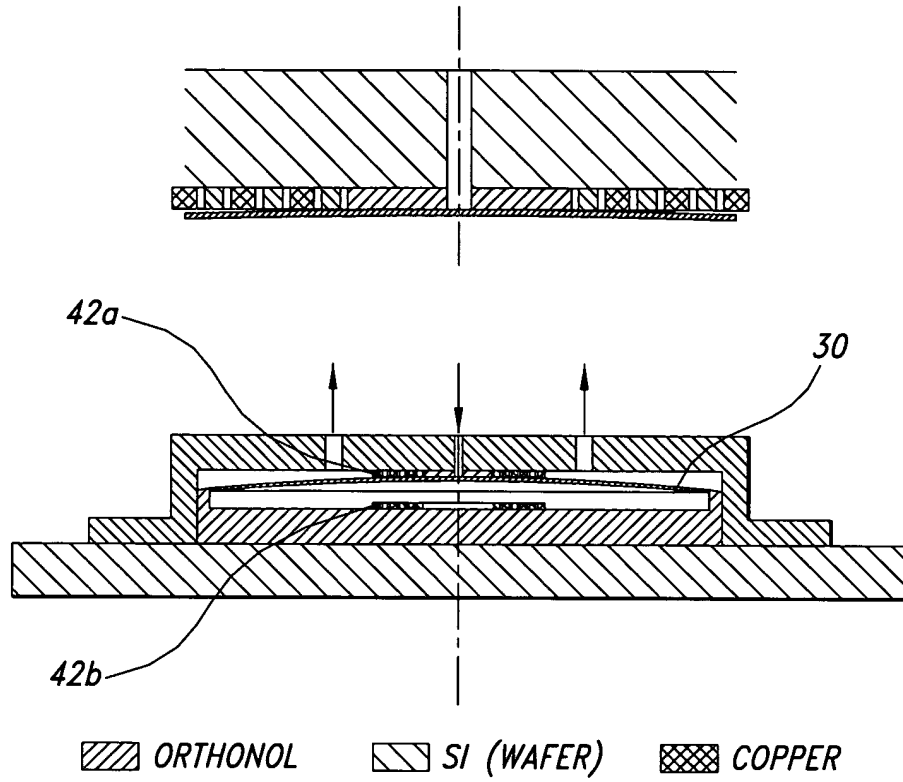


FIG. 41

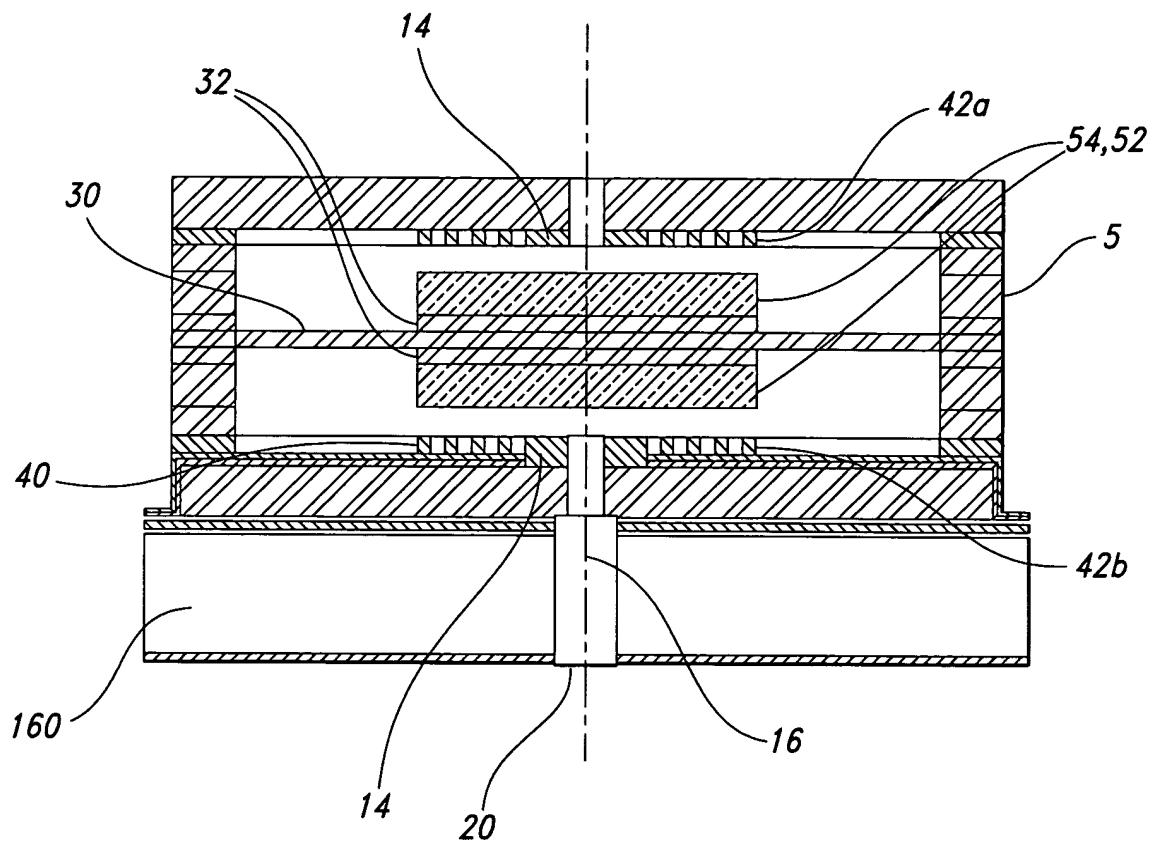


FIG. 42

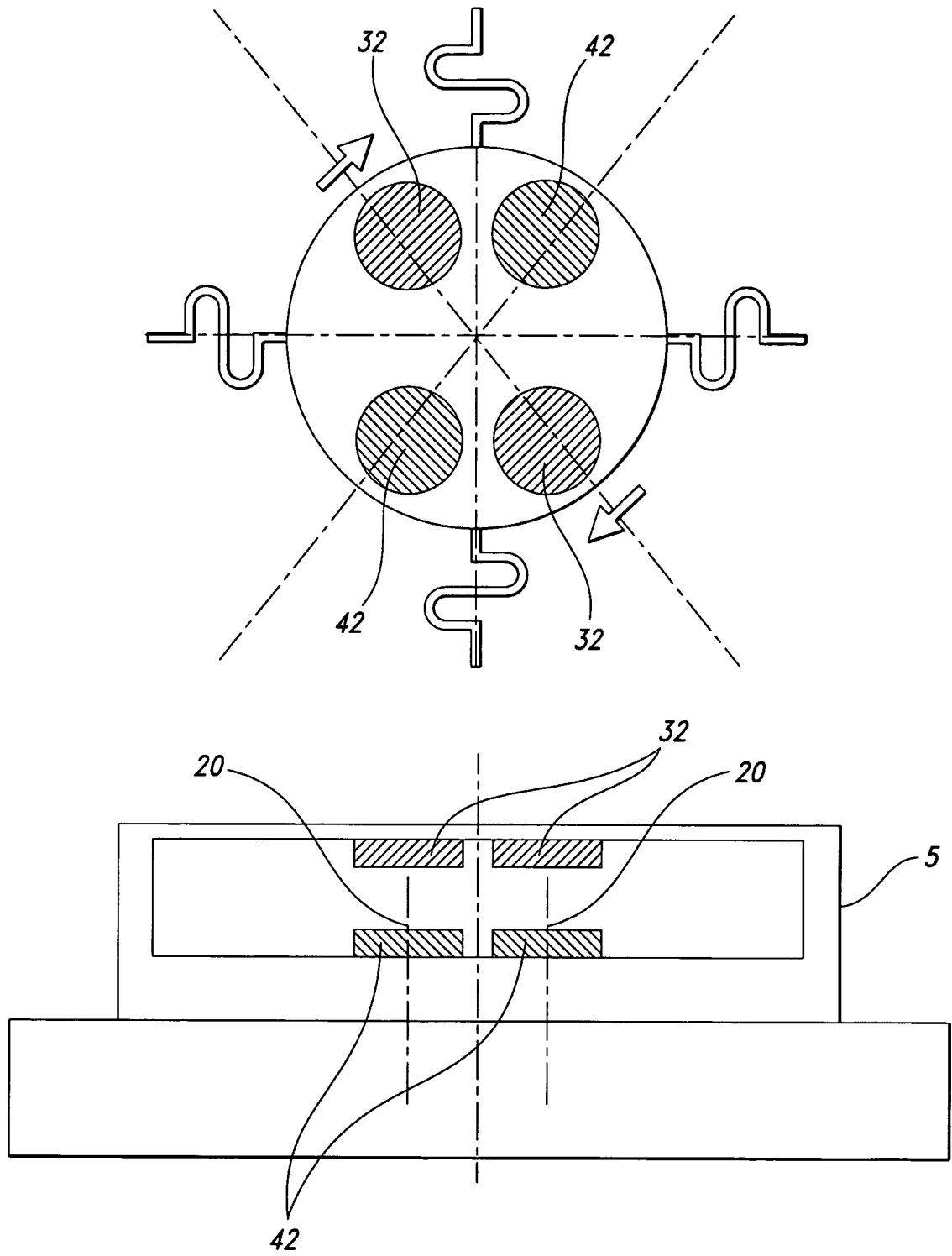


FIG. 43

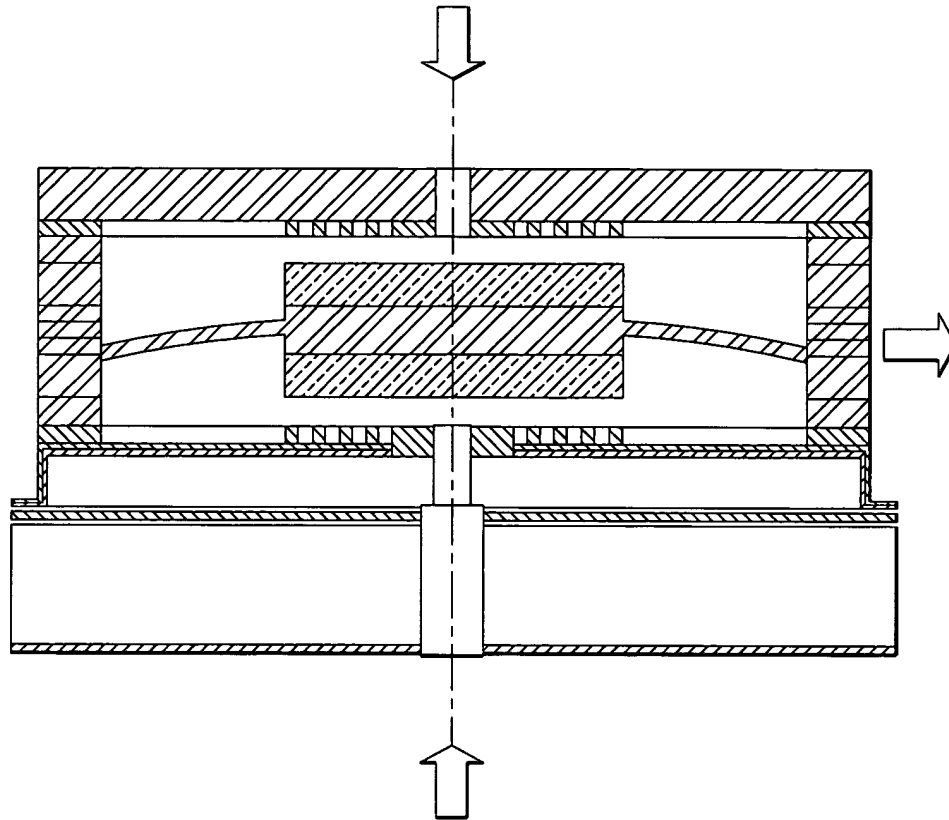


FIG. 44



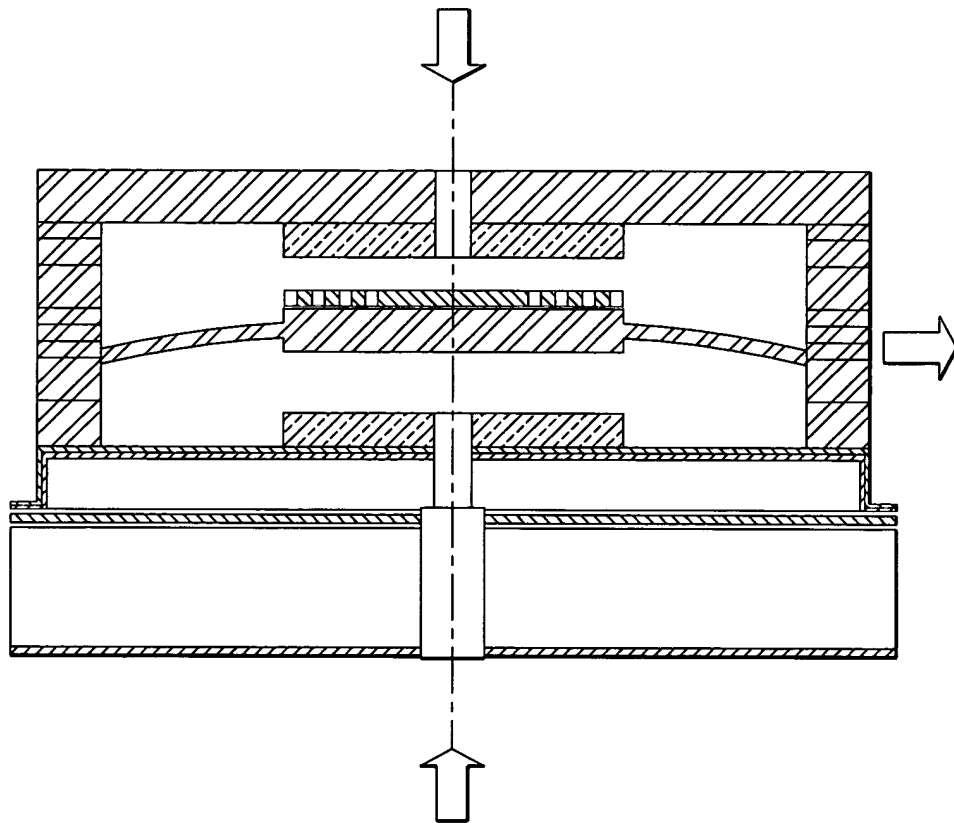


FIG. 45



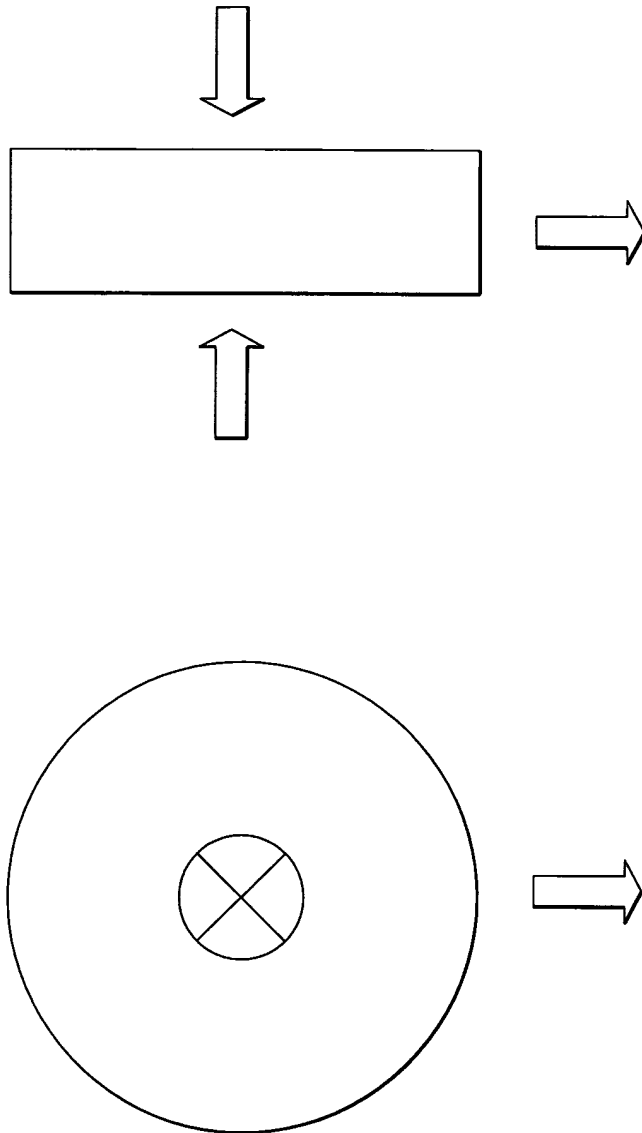


FIG. 46



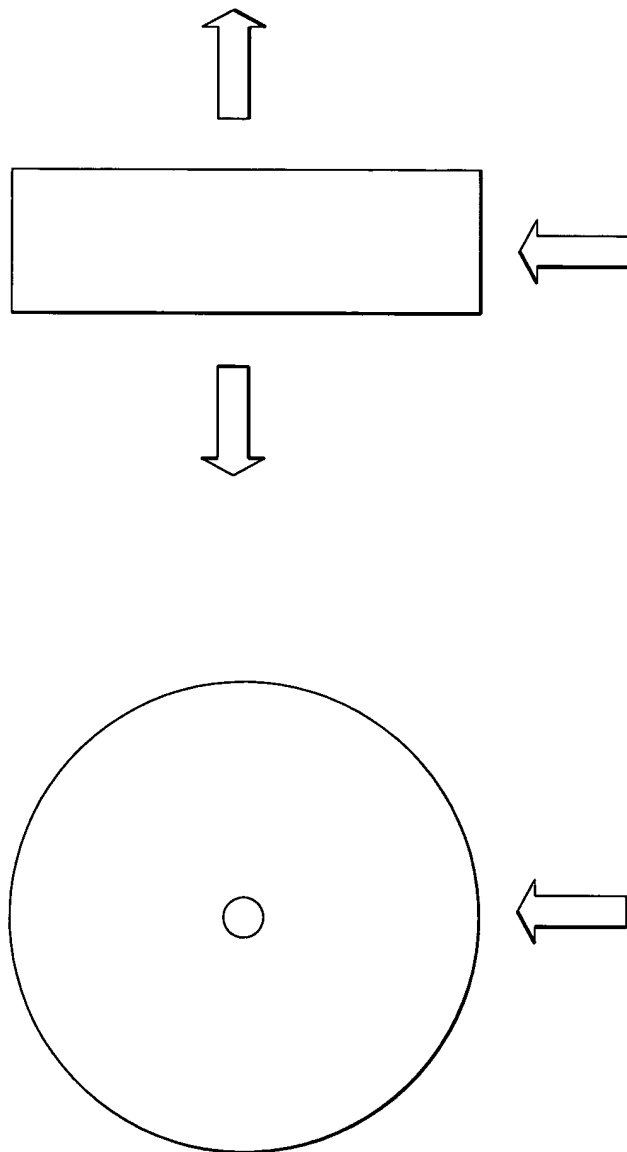


FIG. 47



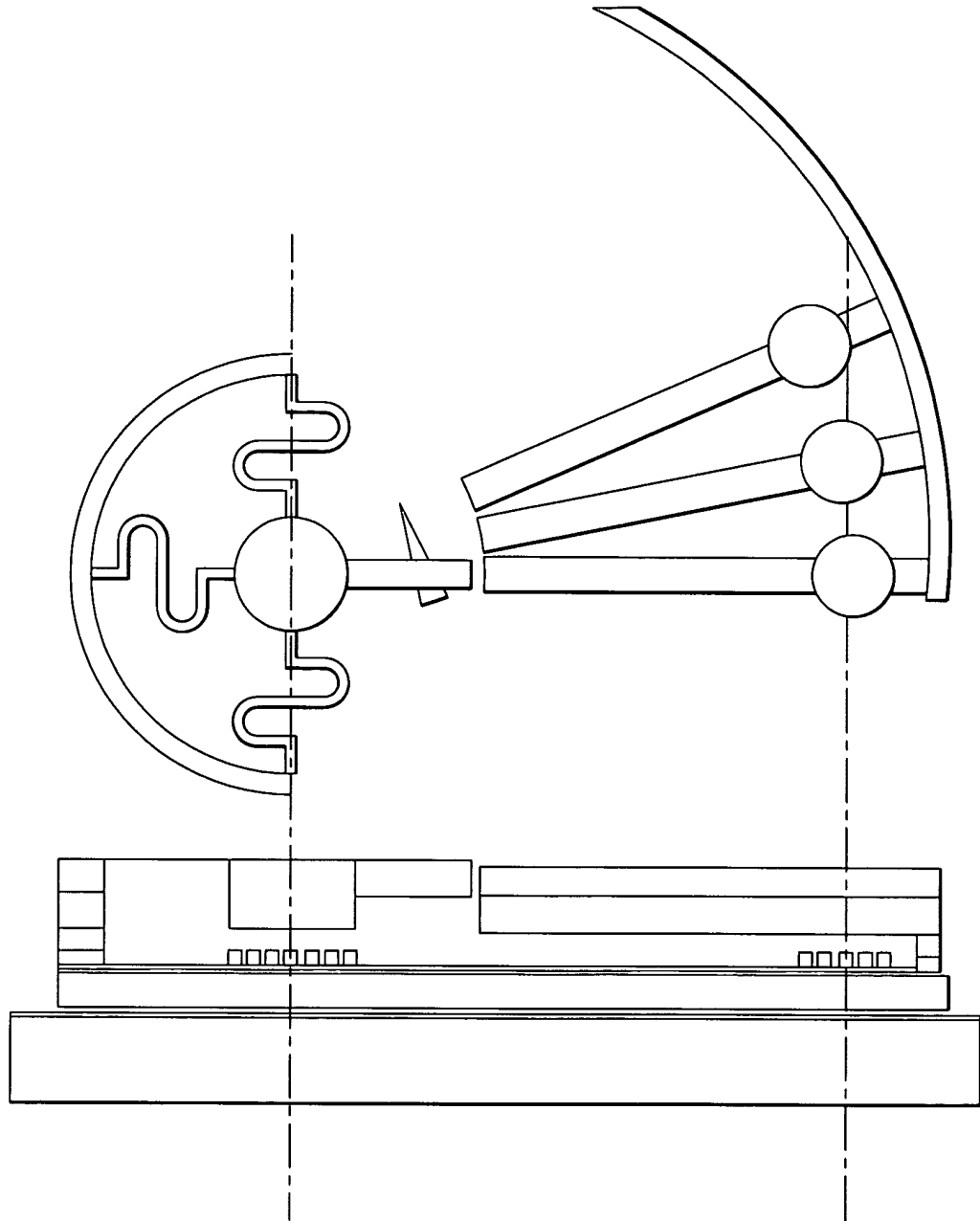


FIG. 48

